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Infant Mortality and Racism in the United States

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Peer Review

This work has undergone a double-blind review by a minimum of two faculty members from institutions of higher learning from around the world. The faculty reviewers have expertise in disciplines closely related to those represented by this work. If possible, the work was also reviewed by undergraduates in collaboration with the faculty reviewers.

Abstract

Significant health disparities exist in the United States with regard to infant mortality, a sensitive indicator of a nation's health. The US has one of the highest infant mortality rates among OECD countries at nearly 6 infant deaths for every 1,000 live births. The rate for Black Americans (11.11 per 1,000) is more than double the rate for White Americans (5.06 per 1,000). Black American women are at higher risk of experiencing risk factors for infant mortality including preterm birth, low birthweight, and prenatal stress. The experience of racism from childhood through adulthood (personal experiences, vicarious experiences, and institutionalized structural racism) is likely a significant contributor to the disparity in infant mortality. This paper reviews the evidence for this and examines racism as a public health issue.

Keywords

infant mortality, racism

INTRODUCTION

Infant mortality is a significant measure of the health of a community or nation. The United States of America (US) has one of the highest infant mortality rates (IMRs) among countries with a similar degree of economic development. In 2013, according to the Centers for Disease Control and Prevention (CDC), the IMR was 5.96 deaths per 1,000 live births.¹ Of the 29 countries belonging to the Organisation for Economic Co-operation and Development (OECD), the US ranked 26th in infant mortality in 2010, meaning its IMR was higher than 25 other countries.²

This rate differs greatly across races in the US, resulting in an undeniable health disparity. The IMR for Black Americans (11.11 infant deaths per 1,000 live births) is more than twice as high as White Americans (5.06 infant deaths per 1,000 live births).¹ Such a large disparity exists raises questions about the ways in which the US social structure impacts citizens to varying degrees, as well as whether the history of institutionalized racism has shaped that structure.

An extensive body of research has documented the relationship between stress during pregnancy and negative birth outcomes such as preterm birth, which is a leading cause of infant mortality. Black American women are at higher risk of experiencing risk factors for infant mortality including preterm birth, low birthweight, and prenatal stress than all other demographics. A better understanding of the possible ways institutionalized racism (racialized discrimination that is normalized in a society) affects infant mortality and the US's overall

health may help communities implement health promotion efforts to end this disparity.

This disparity is present in individual states as well. Although it varies by ratio, the infant mortality rate for Black Americans is consistently higher in each state.¹ The largest disparities comparing infant mortality of Black Americans and White Americans exist in New Jersey, Connecticut, Wisconsin, Illinois, Maryland, and Utah. In each of these states, the IMR of Black Americans is at least 2.7 times greater than the rate of White Americans.¹ In New Jersey, the state with the greatest disparity, the IMR for Black Americans is 3.2 times greater with 10.34 infant deaths per 1,000 live births. For comparison, in the same state, the rate for White Americans is 3.2 deaths. Kentucky has the lowest disparity, but the IMR for Black Americans (9.78) is still 1.5 times higher than that of White Americans (6.68).¹ There is not one state in the US where the IMR for Black Americans is lower than that of White Americans, suggesting a very a serious concern regarding infant health in the US widely.

Since 2005, the IMR in the US has decreased by nearly 13% from 6.86 to 5.96 deaths per 1,000 live births, a significant improvement.¹ Even though IMRs in the US have improved for all races since 2005, the gap in IMR between Black Americans and White Americans has doubled in that same time period, and still exists in every state in the country. In light of this disparate and complex data, the purpose of this study is to summarize the risk factors for infant mortality as well as the evidence for the ways in which racism is associated with this health disparity.

¹ Mathews, T. J., MacDorman, M. F., & Thoma, M. E. (2015). Infant mortality statistics from the 2013 period linked birth/infant death data set. *National Vital Statistics Reports*, 64(9). Retrieved from www.cdc.gov

² MacDorman, M. F., Mathews, T. J., Mohangoo, A. D., & Zeitlin, J. (2014). International comparisons of infant mortality and related factors: United States and Europe, 2010. *National Vital Statistics Reports*, 63(5).

RISK FACTORS FOR INFANT MORTALITY

There are many risk factors contributing to infant mortality, including preterm birth, low birthweight, and prenatal stress. The prevalence of each of these risk factors varies by race in every instance, suggesting a systemic rather than idiosyncratic issue.

Preterm birth. One of the most significant risk factors for infant mortality is preterm birth, which occurs when the gestational age of an infant is 37 weeks or less. In 2013, nearly 35% of infant deaths were related to preterm causes. Not only are preterm infants at greater risk for health issues than full-term infants because of a lack of complete development, but their small size puts them at an even greater risk of both short-term and long-term health issues. Regarding differences by race, Black American women are more likely to give birth early (before 37 weeks gestation) than other races.¹ Additionally, 44% of infant deaths for Black American women are attributed to causes related to preterm birth, making this specific IMR 490.9 deaths per 100,000 live births, three times higher than the rate for White American women (159.1).

Low birthweight. Low birthweight also has a significant impact on the likelihood of infant mortality. The infant mortality rate for these infants is 25 times higher than those at a normal and healthy weight of at least 2,500 grams; in 2013, the IMR for low birthweight infants was 50.26 compared to 2.05 for those 2,500 grams and more.¹ When an infant is born weighing less than 1,500 grams, what is known as *very low birthweight*, the IMR skyrockets to 100 times

the rate for infants of a healthy birthweight to 219.56 deaths per 1,000 live births in 2013. While the infant mortality rate for low birthweight infants in the country in 2013 was 50.26 deaths per 1,000 live births, the rate for Black Americans was more than two times higher than White American women; more than 13% of Black Americans' births were low birthweight.¹

Maternal complications. Another factor that contributes to infant mortality and varies by race is maternal complications. The CDC considers multiple pregnancy (e.g., having twins or triplets), incompetent cervix (a controversial term), and premature rupture of membranes to be examples of maternal complications. The infant mortality rate for Black Americans related to these causes is nearly three times greater than White American women. In 2013, the rate for Black Americans was 86.5 deaths per 100,000 live births while that of White Americans was 29.8.¹ It is difficult to understand why these rates were higher for Black American women when compared to their White counterparts, as research is limited.

Chronic stress. Lastly, there is sufficient research to support that stress causes health issues, including adverse birth outcomes such as preterm birth and low birthweight. Stress can stem from a variety of situations: prenatal life events, anxiety, and national tragedies, among others.³ Some types of stress may impact birth outcomes more than others. For example, in a study by Dunkel-Schetter and Tanner, it was discovered that chronic stressors, or stress that occurred over long periods of time, were greater predictors for low birthweight when compared to major life events.⁴ Chronic stress creates a greater impact on health

³ Rosenthal, L., & Lobel, M. (2011). Explaining racial disparities in adverse birth outcomes: Unique sources of stress for Black American women. *Social Science & Medicine*, 72(6), 977–83. doi:10.1016/j.socscimed.2011.01.013

⁴ Dunkel-Schetter, C., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: Implications for mothers, children, research, and practice. *Current Opinions in Psychiatry*, 25(2), 141–48. doi:10.1097/YCO.0b013e3283503680

outcomes because it contributes to allostatic load: “wear and tear” on the body’s systems. This load then causes the body to be unable to appropriately function, or maladapt; on the other hand, acute stress is simply an adaptive process.⁵ According to Juster, McEwen, and Lupien, the physiological changes as a result of chronic stress are “catalysts of accelerated aging and agitators of disease trajectories.”⁶ The allostatic load model helps to break down the physiological effects that chronic stress impacts on the body. When an individual is stressed, their body releases stress hormones, including epinephrine, norepinephrine, adrenaline, and cortisol. These hormones normally function to maintain blood pressure and other bodily functions during times of stress. Chronic stress causes the secretion of these hormones to be prolonged, however, causing the body’s systems to maladapt.⁶ To begin, other systems of the body will start to overcompensate to attempt to correct these issues; the hormones are no longer protecting the individual, but causing further damage. As the stress continues, the body’s metabolism as well as cardiovascular and immune systems are impacted. The body does not function normally and suffers from physiological dysregulations as a result.⁶

Racism is a major source of chronic stress specifically for Black American women, and is likely contributing to adverse health outcomes, including infant mortality. Bias and discrimination “is associated with higher levels of psychological distress, depression, anxiety, and multiple indicators of poor physical health.”⁷ Authors Richman and Jonassaint conducted a study with a

group of Black American college students. The participants watched a video either related to their identification as a student or by their race. The Duke Lacrosse scandal occurred while the study was being conducted, however; a Black American woman accused three white, male, Lacrosse players from Duke University of raping her. The men were found innocent. In the study, this scandal was regarded as a “real-life racial stressor” and was found to be linked with increased levels of cortisol.⁷ The cortisol levels were higher for the Black American women in the study than other participants, suggesting that women and men may have varying responses regarding stressors (and that the females may have experienced the compound effects of stress as a Black American *and* stress as a female). The results of the study suggest that race-related stress increases cortisol levels and thus changes the physiological responses to stress. These responses then cause prolonged secretion of stress hormones, creating adverse, long-term health outcomes.

Although there are many risk factors for infant mortality, low birthweight and preterm births, often influenced by stress, account for a large fraction of infant deaths in the US. These rates are considerably greater for Black American women. According to Rosenthal and Lobel, women who experienced high amounts of discrimination based on race were 1.4 times more likely to give birth preterm.³ Rosenthal and Lobel shared results from a study that compared birth outcomes of Black immigrants and Black Americans.³ The study concluded that Black immigrants in the US have lower rates

⁵ Giurgescu, C., McFarlin, B. L., Lomax, J., Craddock, C., & Albrecht, C. (2011). Racial discrimination and the black-white gap in adverse birth outcomes: A review. *Journal of Midwifery & Women's Health*, 56(4), 362–70. doi:10.1111/j.1542-2011.2011.00034.x

⁶ Juster, R., McEwen, B. S., & Lupien, S. J. (2010). Allostatic load biomarkers of chronic stress and

impact on health and cognition. *Neuroscience & Biobehavioral Reviews*, 35(1), 2–16. doi: 10.1016/j.neubiorev.2009.10.002

⁷ Richman, L. S., & Jonassaint, C. (2008). The effects of race-related stress on cortisol reactivity in the laboratory: Implications of the duke lacrosse scandal. *Annals of Behavioral Medicine*, 35(1), 105–10. doi:10.1007/s12160-007-9013-8.

of infant mortality, preterm birth, and low birthweight when compared to those native to the US. In fact, results showed that the longer a Black immigrant lived in the US, the worse their health outcomes became. Because Black Americans and immigrants experience a larger burden of adverse health outcomes than similar White populations, the issues discussed in this thesis are likely related to sociocultural factors.

INSTITUTIONALIZED RACISM AND ITS SOURCES

In 1993, Krieger, Rowley, Herman, Avery, and Phillips defined racism as “a multidimensional construct that involves the oppression, domination, and denigration of individuals by other individuals and by social institutions on the basis of skin color and/or membership in a particular ethnic group.”⁸ This construct occurs at many levels, including through systematic discrimination instilled in the way our country functions. Institutionalized racism includes the “macro level barriers to racial and ethnic minority inclusion and advancement.”⁸ Racism is especially harmful compared to other forms of stress because it attacks a characteristic that cannot be changed.

There are specific ways in which racism may contribute to negative birth outcomes for Black Americans. Even when socioeconomic status, education, gestational age, medical risk, and spontaneous labor are all controlled for, Black American women are still at greater risk of giving birth to a low birthweight infant.³ The myriad ways in which racism may impact birth outcomes are

organized here into levels: individual, relationship, community, and societal factors.

Individual factors. In the US, individuals may be strongly impacted by the longstanding history of racism and prejudice. The personal experiences, the experiences of friends and loved ones, and historical knowledge converge toward an expectation of potential discrimination. In a study by Nuru-Jeter and colleagues, the authors conducted focus groups with Black American women living in California to ask them about their own experiences with racism. Respondents reported internalized concerns for future events, causing stress and potential adverse health outcomes.⁹

Relationship factors. Experiencing racism directly is damaging, but there is evidence to show that a vicarious experience may have just as much, if not more, lasting effects. Several studies have shown that witnessing another person experience racism may have larger impacts on a person’s stress level and health than other manners of racism. For example, Dominguez and colleagues showed that racism experienced vicariously (through the experience of another person) as a child was the only predictor that influenced birth weight independently of other factors.⁸ This suggests that experiencing racism as a child may have greater, long-term impacts on health than compared to racism experienced as an adult. It is known that experiencing high-stress situations as a child can cause physiological changes affecting long-term health, so when a child witnesses their parent suffering from discrimination, they feel their own security being threatened.⁸ Within the family, parents may also attempt to teach or prepare children

⁸ Dominguez, T. P., Dunkel-Schetter, C., Glynn, L. M., Hobel, C., Sandman, C. A. (2008). Racial differences in birth outcomes: The role of general, pregnancy, and racism stress. *Health Psychology*, 27(2), 194–203. doi:10.1037/0278-6133.27.2.194

⁹ Nuru-Jeter, A., Dominguez, T. P., Hammond, W. P., Leu, J., Skaff, M., Egarter, S., Jones, C. P., Braveman,

P. (2009). “It’s the skin you’re in”: African-American women talk about their experiences of racism. An exploratory study to develop measure of racism for birth outcome studies. *Maternal and Child Health Journal*, 13(1), 29–39. doi:10.1007/s10995-008-0357-x

for future, potential occurrences of discrimination. The authors suggested there may be negative consequences of parents educating and attempting to prepare their children for racism and inequality.⁸ Whether discrimination and racism are experienced directly or vicariously, these encounters may have long-term impacts on health.

Community factors. Racism is institutionalized and prejudice is widespread. Black Americans experience racism in community settings such as workplaces, neighborhoods, retail and healthcare settings, which both directly and indirectly add stress to daily life. These factors cause disproportionate stress among Black American women that their White counterparts do not experience. And, as previously described, that increased stress is definitively linked to birth outcomes.

One example of institutionalized racism is residential redlining, an “institutional practice in which banks and other financial institutions deny loans to communities and individuals based on race.”¹⁰ This practice is not a new concept; in fact, the term became known in the 1960s but has existed much longer. Residential redlining is a method of controlling the distribution of wealth throughout communities. By denying some applicants home loans for purchases in certain geographic areas, those applicants are forced to consider homeownership in neighborhoods and communities that they did not originally consider or desire. This practice is believed to both indirectly and directly impact health outcomes because of the disparities among community and neighborhood conditions. Redlined neighborhoods have poorer access to

resources, including grocery stores, education, and healthcare providers, and are said to be stress-inducing.¹⁰

In a study by Mendez et al, data from the Home Mortgage Disclosure Act (HMDA) in Pennsylvania in 1999–2004 were used to determine the impacts of residential redlining.¹⁰ They determined that Black American applicants were more likely to be denied a loan, even when controlling for the applicant’s gender, income, and loan amount.¹⁰ Black American women had a greater likelihood of living in redlined neighborhoods compared to any other group. Although the authors did not present a significant direct association between residential redlining and birth outcomes, they did find a relationship between residential segregation, a result of redlining, and birth outcomes. The authors suggest that because of the long-standing history of redlining and its existence as an institutional practice, it may be difficult to find the direct impact on pregnancy-related outcomes.¹⁰

In a study by Hearst et al, researchers examined the relationship between segregation and infant mortality and did not find sufficient evidence to conclude that there is a clear relationship between the two.¹¹ The authors do not, however, conclude that a relationship does not exist between segregation and infant mortality. Rather, they point to the complex nature of separating the characteristics of individuals from the neighborhood contexts when examining impacts on infant mortality: “what differentiates a segregated city from a nonsegregated city is the cumulative effect of the people and the policies, both formal and informal, that are in place.”

¹⁰ Mendez, D. D., Hogan, V. K., & Culhane, J. (2011). Institutional racism and pregnancy health: Using Home Mortgage Disclosure Act data to develop an index for mortgage discrimination at the community level. *Public Health Reports*, 126(5), 102–14.

¹¹ Hearst, O., Oakes, J.M., Johnson, P.J. (2008). The effect of racial residential segregation on black infant mortality. *American Journal of Epidemiology*, 168(11), 1247–1254. Doi: 10.1093/aje/kwn291

There is also evidence to suggest that the workplaces of Black American women can also serve as an environment in which experiences of racism occur. For many women in the US, socioeconomic status and education level is directly correlated with improved birth outcomes, meaning women and families with a higher level of education and/or a greater income experience lower rates of low birthweight and infant mortality. Yet, this is not the case for every race. Black American women with increased education may actually experience higher rates of low birthweight and infant mortality.³ These women may be working in environments with a largely white staff, creating greater discomfort and an increased potential for experiences of discrimination as these work settings are “underpopulated by people of color,” as described by Rosenthal and Lobel.³ Statistics comparing median wealth and outcome by race demonstrate the separation. According to Williams, Priest, and Anderson, the ratio for median income for Black Americans to White Americans was 0.59; in other words, Black Americans make 59 cents for every dollar that a White American makes.¹² This statistic exhibits the disproportion of wealth and likely the disproportion of races in work settings in the US. It is suggested that a Black American woman in this setting will experience discomfort and disconnect from her coworkers, resulting in a greater likelihood of perceived racism.³

Societal factors. Recent research shows that the gap between Black and White

women in rates of preterm birth and low birthweight (both linked with infant mortality) is larger in US counties with higher levels of racial prejudice than those without (as measured in studies by way of survey¹³ and analysis¹⁴ of internet queries). In addition, a long history of medical mistreatment from providers with Black American patients has led to a lack of trust.³ Research shows that Black American patients do receive substandard medical care. If a White patient entered a hospital with chest pain, they would very likely receive a referral for a cardiac catheterization; on the other hand, Black American women are least likely to receive this referral for chest pain.³

This discrimination extends to expecting mothers. Because of an underlying stereotype that Black Americans do not have health insurance or rely on welfare, pregnant mothers have been denied treatment in hospitals around the country.³ If they have been admitted, Black American women express feelings of discomfort and that they are not welcomed or properly treated by their providers.³ In “Listening to Mothers III,” a survey to report women’s experience of pregnancy and labor, nearly 20% of Black American women shared that because of their race, they felt they received poor treatment in a hospital setting, while only 8% of White American mothers reported so.¹⁵ Moreover, 55% report they had no choice in choosing their prenatal provider and 26% met their birth attendant for the first time during delivery, as compared with 17% and 18%, respectively, for White mothers.¹⁵ These

¹² Williams, D. R., Priest, N., & Anderson, N. (2016). Understanding associations between race, socioeconomic status and health: Patterns and prospects. *Health Psychology, 35*(4), 407-411. doi:10.1037/hea0000242

¹³ Orchard, J., & Price, J. (2017). County-level racial prejudice and the black-white gap in infant health outcomes. *Social Science & Medicine, 181*, 191-198. doi:10.1016/j.socscimed.2017.03.036

¹⁴ Chae, D.H., Clouston, S., Martz, C.D., Hatzenbuehler, M.L., Cooper, H.L.F., Turpin, R., et al. (2017). Area racism and birth outcomes among Blacks in the United States. *Social Science & Medicine, 199*, 49-55. doi:10.1016/j.socscimed.2017.04.019

¹⁵ Listening To Mothers III. (2013). How do childbearing experiences differ across racial and ethnic groups in the United States? Retrieved from <http://transform.childbirthconnection.org/reports/listeningtomothers/race-ethnicity/>

examples demonstrate the lack of control over decisions that some Black American women may face during their pregnancies, resulting in further stress and less adequate medical care. Regarding the birthing process, Black American women often report being coerced into using passive techniques for giving birth, including lying on their backs, using epidurals, receiving episiotomies, or delivering by way of an unnecessary cesarean section.³

SUMMARY AND CONCLUSIONS

Creating a potential solution becomes complicated as the extent and complexity of the disparity is revealed; because the sociocultural risk factors and sources of chronic stress are apparent at multiple socio-ecological levels, one program will not solve the issue. The multidimensional nature of racism and continued denial of the existence of institutionalized racism perpetuates the disparity and makes a solution seem out of reach. Without admitting the presence of racism, there is no future without this racial gap.

The disparity is not something that can be fixed by a change in prenatal or lifetime health practices of Black American women; the issue is not in the individual health practices, but within the structures of US society and popular opinion. As a country, there is vast room for improvement regarding prejudices and discrimination in health practices. For public health professionals, it is critically important to take the time to reflect and self-evaluate upon one's own prejudices.

An individual program will not resolve this health disparity among races in the US. Based on the range of findings put forward here, it seems that only by acknowledging the existence of these prejudices, can health professionals create and implement promotion programs and foster a society that is equal in its access to

medical services, particularly concerning the beginning of life. Without this acknowledgement within public health professionals themselves, health promotion efforts will not be able to reach their full possible impact. Although discrimination and racism runs much deeper and impacts so much more than infant mortality rates, this indicator helps us evaluate progress. When we are able to say that every infant, regardless of race, has the same access to a successful and healthy life, we will know we have achieved equality.